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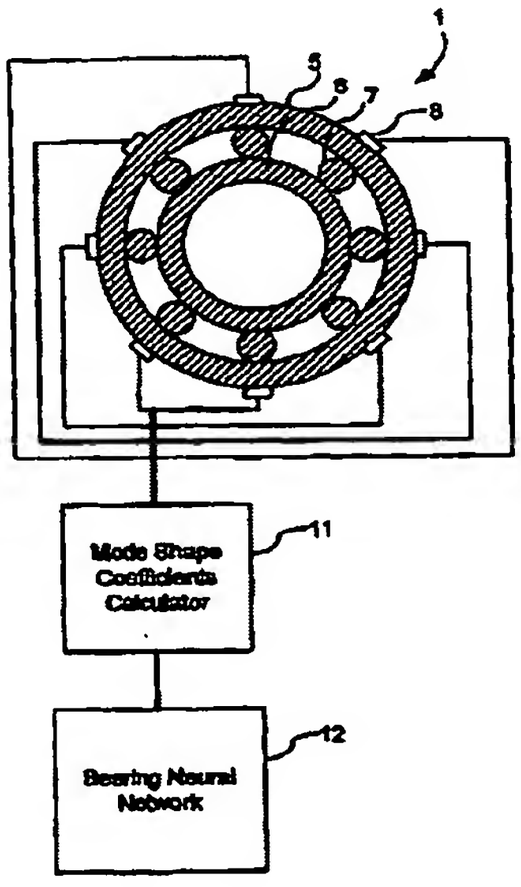
(54) Title: METHOD AND SENSOR ARRANGEMENT FOR LOAD MEASUREMENT ON ROLLING ELEMENT BEARING BASED ON MODEL DEFORMATION



(57) Abstract: Method and sensor arrangement for determining a load vector acting on a rolling element bearing (1) in operation. A plurality of N sensors (8) are provided which measure displacement and/or strain for determining displacement and/or strain in one of the elements (5, 6, 7) of the rolling element bearing (1). Furthermore, a mode shape coefficients calculator (11) is provided, connected to the plurality of N sensors (8), for determining a deformation of the element (5, 6, 7) by calculating amplitude and phase of N/2 Fourier terms representing at least one radial mode shape of the ring shape element (5, 6, 7). Also, a bearing neural network (12) is present, connected to the mode shape coefficients calculator (11), the bearing neural network (12) being trained to provide the load vector on the rolling element bearing (1) from the N/2 Fourier terms.

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